

# CURRICULUM VITAE



**Sachin Bharadwaj M**  
Mechanical Engineer  
PES UNIVERSITY  
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**Qualifications:** A dynamic Mechanical Engineer from a premier institution with specialization in:

- **Electronic Packaging and manufacturing** (Micro-fabrication techniques and Thermal and Mechanical design of heat sinks) - certified as Elite+Silver grade by **IIT Kharagpur**
- Geometric Dimensioning and Tolerancing (GD&T)
- Automotive Electronics (Embedded systems)
- Rapid Prototyping (3D printing)
- Hydraulics & Pneumatics

## Simulation/ computational tools:

- Over 3 years of experience in softwares like **SolidWorks, Ansys Fluent, COMSOL Multiphysics, MATLAB, Maple, Python, MS Office.**

## Team building activities:

- Being elected as the Captain in School and College levels organised Cultural and Sports programmes and lead the team in the same.
- Was a part of formula student team (Haya) in Brakes and wheels sub-system.
  - Performed Gas welding.
  - Metal cutting processes (using BOSCH power tools).
  - Preparing body-works using composites.

## Language studies & hobbies:

- English, Kannada, Hindi, German.
- Carnatic classical flute [given stage performances and bagged many prizes], Veda chanting, Cycling, Cooking.

## Work Experience: [From August 2020 till date]

- Working as a Research Associate at Process Modelling & Research Laboratory, PES University for the project funded by leading automotive manufacturer Garrett Motion Pvt. Ltd.
- Thermal management in power electronics using microchannels and cold plates, placement optimization of components on PCB using Single Objective Genetic Algorithm (SOGA).
- Development of Artificial Neural Network based correlation for heat transfer coefficient of Supercritical Carbon Dioxide.
- Organizing the 1<sup>st</sup> Biennial International Conference on Hybrid & Electric Automotive Technologies, HEAT 2021, (Website link: [heat.pes.edu](http://heat.pes.edu))

## Education:

- **97%** (State 14<sup>th</sup> rank) in SSLC from Sudarshan Vidya Mandir, Bangalore.
- **98%** (State 12<sup>th</sup> rank) in 2<sup>nd</sup> PUC from RV PU College.
- **Silver medallist, 9<sup>th</sup> rank** in B. Tech Mechanical Engg. PES University, Bangalore, with an Overall CGPA of **9.02**.
- Recipient of **Prof. CNR Rao Merit scholarship / cash award** throughout undergraduate studies for being in the top 15% of branch (& >8.5 GPA).
- GATE AIR 2803 in Engineering Sciences (XE) stream.

## Projects:

- Received sponsorship from **TATA technologies (PUNE)** for the design and fabrication of Hybrid Stirling Engine (converts solar energy to electricity for battery charging applications).
- Research work on **Cold Plate Heat Exchanger** for Battery Thermal Management system using Finite Element Analysis (FEA) using MATLAB.

## Presentations:

- Anchored/hosted the function held to inaugurate the Automotive Electronics Laboratory by **ROBERT BOSCH** at PES University & interacted with **BOSCH Vice-President Mr. R.K. Shenoy**.
- Presented the working of Hybrid Stirling Engine at Prakalpa project exhibition 2018 and won the best project award for the same.
- Presented the Hobby electronics experiments like LED displays, impact of heat sinks on performance of microprocessors.
- Gave a talk on **Laser Engineered Net Shaping (LENS)** 3D printing process, build style etc.

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## Bachelor Thesis-

“Thermal Investigations of Cold Plate Heat Exchanger for Electric Vehicle Battery Cooling application by FEA and ANN Simulations using MATLAB”

- [1] Results of the project: Temperature Distribution across the Cold Plate under Steady-State conditions, with & without the effects of Radiation and under Constant Heat Flux loading.
- [2] A general-purpose MATLAB code was developed to discretize a single-phase flow, multi-pass, Serpentine Channel Cold Plate to find the performance parameters such as Maximum Temperature, Standard Deviation in Temperature & Pressure drop.
- [3] The Effect of variations in Inlet Coolant Temperature, Input Heat Flux & Coolant Mass Flow Rates on the temperature profile of the cold plate was found.
- [4] Using the non-dimensional form of the governing equations, performed parametric studies to obtain a correlation between the temperature profile of cold plate & four non-dimensional design parameters using Artificial Neural Network (ANN).

Publication Link: [Steady-state thermal investigations on cold plate using FEM \(Elsevier\)](#)

Article Under Review: ANN based correlation for maximum non-dimensional temperature in cold plate (Manuscript no. TSEP-D-21-00273)

## **Certifications:**

- **Mathworks:**  
Introduction to Statistical Methods & Linear algebra using MATLAB.
- **Datacamp:**  
Introduction to Deep Learning in Python.
- **NPTEL (IIT-KGP):**  
Electronic Packaging & Manufacturing.
- **Inlingua:**  
German Proficiency - A1 & A2 levels.
- **TCS iON for Engg. Graduates:**  
Common Corporate Qualifier Test.
- **Pearson Versant English Test:**  
Level 6 - Advanced
- **IIT Mandi - Wiley:**  
Applied Artificial Intelligence & Machine Learning. (In progress)

## **References:**

- Dr. K.S. Sridhar,  
Chairperson, Dept. of Mechanical engg,  
UG programme, PES University.
- Dr. K.N. Seetharamu,  
Chair-Professor, Dept. of Mechanical  
Engg, PES University.
- Prof. BabuRao Ponangi,  
Assistant Professor, Dept. of  
Mechanical Engg, PES University.
- Mr. Harish Babu,  
Supplier Quality Manager, Vehicle  
Dynamics BU, Continental Automotive  
Systems.
- Mr. Thomas Albin,  
Assistant Manager, Power train sensors  
BU, Bosch Ltd.

## **Internships:**

Summer internship at CONTINENTAL AUTOMOTIVE AG.  
(Electronic city) - in the dept. of Supplier Quality Management, Vehicle Dynamics and Safety systems.

[period: June - July 2018]

- Achieved the task of calculating the production cycle time for an anti-lock brake by designing and simulating the entire automated manufacturing cycle using SolidWorks.
- Prepared the Production Part Approval Process (PPAP) documents.
- Design and fabrication of storage compartments using scrap materials from the production line.
- Inspection of Anti-lock Braking Systems according to engineering part level drawings.
- Worked on SAP to collect project related data such as lot quantity, product drawings, specifications, child part details etc.

Received appreciation from Mr. Sebastian Ananthaswamy, project head - Vehicle Dynamics and Safety systems, Continental Automotive AG.

Summer Internship at ROBERT BOSCH INDIA LTD.  
(Adugodi, B'llore) - In the Engineering dept. of Powertrain sensors for Engine systems.

[Period: June - July 2019]

- Worked on the project titled “Evaluation of HEX screw material for Temperature sensor” where Design Review Based on Failure Modes (DRBFM) was done as part of a cost reduction project.
- Testing and validation of Glow plugs for diesel engine applications.
- Worked on Measuring instrument like Profile Projector.

Received appreciation from Mr. S. Prashanth, Senior Manager, Powertrain sensors, Robert Bosch India Ltd.